

PATENT ABSTRACTS OF JAPAN

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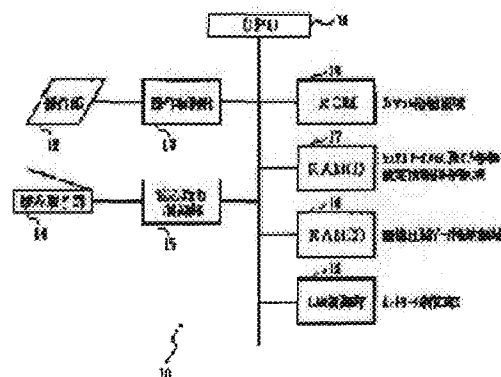
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(54) NETWORK ADAPTIVE SCANNER DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a network adaptive scanner device which can uniformize the size of compressed image data in unit of single pages.

SOLUTION: Read digital image information is temporarily stored in a RAM(1) 17, and an image is compressed. This data is stored in a RAM(2) 18. The compressed data size for one page preliminarily set by an operation part 12, and the data size after compression of the read image are compared with each other. If the size after compression is larger than the set size, the resolution of a set condition for read is reduced again by one grade to reread the image, and the image is compressed, and the size after compression of the image for which the resolution is reduced is checked based on the set size. When the data size after image compression becomes equal to or smaller than the set size, the compressed image is stored in the RAM(2).



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CLAIMS

[Claim(s)]

[Claim 1]A type scanner device corresponding to a network which is provided with the following, compresses a digital image reread by this image read condition alteration means by said image compression means, memorizes a compressed picture, and is characterized for this memorized compressed image by said thing [*****(ing) and transmitting to a device of the destination].

A picture on a manuscript is used as a digital image, and it is a reading **** image read means the whole page.

An image compression means which compresses said digital image read by this image read means.

A graphical-data-compression sizing means to set up compression size of a picture to transmit. By image size comparison means to compare size of said compressed image set up by this graphical-data-compression sizing means with size of said compression digital image compressed by said image compression means, and this image size comparison means. When size of a compression digital image compressed by said image compression means is larger than size of a compressed image set up by this graphical-data-compression sizing means, An image read condition alteration means which rereads a picture on said manuscript by said image read means in size of said compressed image set up by said graphical-data-compression sizing means, and a connecting means connected via other devices and networks.

[Claim 2]A type scanner device corresponding to the network according to claim 1 characterized by the ability to set up compression size of a picture by said graphical-data-compression sizing means from other devices via said connecting means.

[Claim 3]When said image read means reads a manuscript which is two or more pages,

compressed image size after graphical data compression by said image compression means of the read page [first] manuscript, A type scanner device corresponding to the network according to claim 1 having further the 2nd graphical-data-compression sizing means set as compressed image size of a manuscript of the remaining pages which should be read.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the type scanner device corresponding to a network connected to a network.

[0002]

[Description of the Prior Art]the scanner device which mainly has a function which reads the information by which the picture on a manuscript, a character or a bar code, etc. was printed, and changes into digital information as peripheral equipment of a computer with automation of an administration building in recent years -- it is used increasingly widely. And a microcomputer function is carried in these scanner device itself, After performing manuscript reading and graphical data compression of the manuscript, the type scanner device corresponding to the network which can transmit picture information is beginning to spread through the server system etc. which are installed in other parts via networks, such as LAN (local area network).

[0003]According to the scanner device of type corresponding to this network, when two or more places of business exist in every place in one company, the image data read with the scanner device of type corresponding to a network in the head office can be easily transmitted to an installing-in each place of business server system, for example. As a result, one image data managed in the head office is sharable by each entrepreneur. That is, it becomes possible using the scanner device of type corresponding to a network to build the filling system by a network, etc.

[0004]

[Problem(s) to be Solved by the Invention]However, two or more manuscripts are read with the type scanner device corresponding to this network, When compressing the picture of the manuscript and transmitting to a server system (it is hereafter considered as a "distribution

destination".) etc. via a network, a compression ratio changes with the size of a manuscript, or contents of the picture, and the data sizes of one page unit differ greatly. Therefore, the problem that the memory space for data accumulation runs short by the distribution destination side, the hour corresponding and communication cost at the time of transmission increased, it became complicated [the file management by the side of a distribution destination], or image display took time had arisen.

[0005]When manuscript size etc. are set up by the type scanner device side corresponding to a network, the picture data size of 1 page which should be filed by the distribution destination side each time and which is compressed and transmitted must be set up, and the operativity by the side of a distribution destination falls. When the preset value with a picture data size of 1 page which is compressed beforehand and transmitted is clear, it is satisfactory, but in being unknown, it cannot carry out calculation setting out of the appropriate preset value easily.

[0006]

→[Means for Solving the Problem]then, a thing for which size of compressed image data of one page unit is equalized when the purpose of this invention compresses reading of a two or more pages manuscript and a picture of the manuscript and it transmits picture information to a distribution destination via a network -- it is providing a type scanner device corresponding to a network which can do things.

[0007]In the invention according to claim 1, use a picture on a manuscript as a digital image, and the whole page A reading **** image read means, An image compression means which compresses said digital image read by this image read means, A graphical-data-compression sizing means to set up compression size of a picture to transmit, and size of said compressed image set up by this graphical-data-compression sizing means, By image size comparison means to compare size of said compression digital image compressed by said image compression means, and this image size comparison means. When size of a compression digital image compressed by said image compression means is larger than size of a compressed image set up by this graphical-data-compression sizing means, In size of said compressed image set up by said graphical-data-compression sizing means. An image read condition alteration means which rereads a picture on said manuscript by said image read means, Have a connecting means connected via other devices and networks, and a digital image reread by this image read condition alteration means is compressed by said image compression means, A compressed picture is memorized and the above-mentioned purpose is attained for this memorized compressed image by [said] ***** (ing) and transmitting to a device of the destination.

[0008]In the invention according to claim 2, the invention according to claim 1 sets and the above-mentioned purpose is attained via said connecting means by the ability to set up compression size of a picture by said graphical-data-compression sizing means from other

devices.

[0009]When the invention according to claim 1 sets and said image read means reads a manuscript which is two or more pages in the invention according to claim 3, The above-mentioned purpose is attained by having had further the 2nd graphical-data-compression sizing means that sets compressed image size after graphical data compression by said image compression means of the read page [first] manuscript as compressed image size of a manuscript of the remaining pages which should be read.

[0010]

[Embodiment of the Invention]Hereafter, the suitable embodiment of this invention is described in detail with reference to drawing 1 thru/or drawing 4. With reference to drawing 1, the basic constitution of the system 100 which connected the type scanner device 10 (it carries out the following "scanner device 10") corresponding to the network concerning this embodiment to the network, and operation are explained. As shown in drawing 1, the system 100 comprises the server system 1, client PC(personal computer) 2, client PC3, the scanner device 10, and the network part 4. There is no limitation in particular in the model and setting number of the server system connected to the network part 4, or client PC.

[0011]The operation of this system 100 is as follows. First, if the power supply of the scanner device 10 is switched on, the network address of client PC2 connected to the server system 1 and client PC3 will download to the type scanner device 10 side corresponding to a network via the network 4 as an address of the distribution partner point. And the address of a distribution destination partner's address is displayed by the scanner device 10 on the final controlling element 12 shown by drawing 2. From this display, the user of the scanner device 10 specifies the distribution destination of the compressed image of a reading manuscript. Scan operation is started by the user by pushing the scanner operation starting button of the final controlling element 12. And a manuscript is read in digital one with the scanner device 10, and graphical data compression is performed after that. This compressed picture transmits the specification distribution partner point, compressed image data, etc. to the server system 1 via the network part 4, after being stored temporarily at RAM (random access memory). The server system 1 performs image transfer processing to client PC2 of the specification distribution partner point, or client PC3 grade after receiving various data, such as the specification distribution partner point and compressed image data.

→ [0012]Next, the basic constitution of the scanner device 10 and operation are explained with reference to drawing 2 and drawing 3. As shown in drawing 2, the scanner device 10, It consists of CPU(central processing unit) 11, the final controlling element 12, the operation control part 13, the reading part 14, the reading control section 15, ROM(read only memory) 16, RAM(1) 17 and RAM(2) 18, and LAN controller 19. CPU11 is provided with the following. The central role of processing of the scanner device 10 is played, and they are the

interpretation of a command, and a function of execution.

The function to transmit data between a memory and other component part.

[0013]The final controlling element 12 performs specification of the distribution partner point, setting out of manuscript size, setting out of the compression data size of the page 1 of a manuscript, etc. under control of the operation control part 13. The reading part 14 reads the picture on a manuscript with image sensors, such as CCD (optoelectric transducer), under control of the reading control section 15, and changes it into digital picture information. ROM16 is a read-only memory and stores the program of the scanner device 10 of operation. This program is rewritable suitably. RAM (1) 17 and RAM(2) 18 are memories in which writing and read-out are possible. RAM (1) 17 mainly functions as a memory which memorizes a system work memory and various kinds of setup information. On the other hand, RAM(2) 18 function as a memory which stores the compressed picture information.

[0014]LAN controller 19 connects the scanner device 10 to the network part 4 of drawing 1, Physically and electrically connect the bus of scanner device 10 inside, and the transmission line of the network part 4, the data transmitted is processed so that LAN form may be suited, or it has functions, such as transmission and reception of data with a transmission line, and surveillance of the data on a transmission line.

[0015]Next, the example concerning the mode of the 1st operation of the scanner device 10 of operation is explained with reference to the flow chart of drawing 3. The following operations are performed by the program stored in ROM16. First, the manuscript containing picture information is set to the reading part 14 by the user (Step 1), and an address, a read condition, etc. of a distribution destination are set up by the final controlling element 12 (Step 2). Next, the scanning starting button on the final controlling element 12 which is not illustrated is pushed by the user, and directions of a scan operation start are told to CPU11 via the operation control part 13. And the picture information in a manuscript is changed into reading ***** and digital picture information by the reading part 14 of the scanner device 10 the whole page with the command from CPU11 (Step 3). This digital picture information is accumulated by RAM(1) 17 temporarily, and a picture is compressed (Step 4). This image compression data is stored in RAM(2) 18. The scanner device 10 concerning the mode of the 1st operation performs the following processings rather than stores image compression data in RAM(2) 18 unconditionally.

→ [0016]First, the compression data size (henceforth "set size") of 1 page beforehand set up by the final controlling element 12 is compared with the data size (henceforth "compression size") after compression of the read picture (Step 5). At this time, when the compression size is larger than set size, (Step 5; Y), Again, after dropping one rank of resolution of the setups at the time of reading on 400DPI, for example from 600DPI (dot per inch) (Step 7), Reading of a

picture is rerun (Step 3), that picture is compressed (Step 4), and the compression size of the picture on which this resolution was dropped based on set size is checked (Step 5).

[0017]And when the data size after this graphical data compression turns into below set size, a compressed image is accumulated to (Step 5; N) and RAM (2) (Step 8). Then, if there is the following manuscript which should be read further (step 9;Y), it will shift to the next reading processing (Step 3), and the above-mentioned operation and same operation will be performed. On the other hand, if there is no following manuscript which should be read further (step 9;N), the compressed image accumulated in RAM (2) will be transmitted to the server system 1 of the destination via the network part 4 (Step 10). When transmitting by such operation by reading a two or more pages manuscript and the back compressing the picture, even if the compression ratio of a picture changes with contents of the manuscript and the data sizes of one page unit differ greatly, Picture information is restored to the size set up beforehand, and equalization of the image data quantity of one page unit transmitted can be attained. Shortage of the storage capacitance by the side of the device of the destination (server system 1), increase of the hour corresponding at the time of transmission, and generating of the complicatedness at the time of file management can be prevented. That is, mitigation of the processing load in a post process is achieved.

2nd Emb [0018]Next, the example of the scanner device 10 concerning the mode of the 2nd operation of operation is explained with reference to drawing 3. In the mode of the 1st operation of ****, although the data size of 1 page is set up by the final controlling element 12, when it is those from whom a user (operator) differs or is a part where distribution destinations differ, it is necessary to carry out a re set with a data size of 1 page by the final controlling element 12 each time in that case. While in this case building the network of LAN in one company and installing the server system 1 and client PC in two or more places of business, for example, If the data size of 1 page is separately set up at every [of each place of business of one company] address (distribution destination) in the data of the distribution destination address downloaded from the server system 1 to the scanner device 10 as beforehand shown in drawing 4, it is not necessary to carry out a re set with a data size of 1 page.

[0019]Then, in the mode of the 2nd operation, it is a final controlling element of the scanner device 10, and when a distribution address is set up by the user, operation which replaces the 1-page data size information set up in the applicable address according to the table of drawing 4 with the already set-up preset value is performed (Step 6). According to the above embodiment [2nd], even if it is a case where a user is changed each time, Even if it is a part where distribution destinations differ, while being able to attain equalization of the image data quantity of one page unit which it becomes unnecessary to reset up the data size of the graphical data compression in every page each time, and is transmitted like the 1st embodiment, the data size processing for every distribution address can perform smoothly.

Data management in the company is also performed smoothly, and operativity's of a user improves.

3rd emb
[0020]Next, the example of operation concerning the 3rd embodiment of the scanner device 10 is explained with reference to drawing 3. In the 1st or 2nd embodiment, when setting out with a data size of 1 page is not made at Step 5 of drawing 3, or when setting out with a data size of 1 page is not carried out into distribution destination setup information, it becomes impossible to arrange the 1-page data size at the time of reading of two or more manuscripts. Then, the page [1st] manuscript is read (Step 3), graphical data compression is performed further (Step 4), and it sets up considering the data size of the 1st page as preset value information with a compression data size preset value of 1 page (Step 6). And compression accumulation is performed with the same data size as the page [1st] manuscript about the 2nd page or below (Step 4). Other processings are the same as that of the 1st embodiment. According to the above embodiment [3rd], like the 1st or 2nd embodiment, when the compression data size of 1 page is clear beforehand, it is satisfactory, but when unknown, an appropriate preset value is computed easily and it can set up. As a result, equalization of the image data quantity of one page unit transmitted can be attained like the 1st or 2nd embodiment.

[0021]

[Effect of the Invention]According to the invention according to claim 1, the size of the image data of one page unit to which two or more manuscripts are transmitted after read image compression becomes uniform, and mitigation of the processing load in a post process can be aimed at.

[0022]According to the invention according to claim 2, equalization of the size of the image data of one page unit which it becomes unnecessary to change a preset value each time, and is transmitted certainly can be attained. Even if a sending person differs from a manuscript kind, equalization of the size of the image data of one page unit transmitted can be attained.

[0023]According to the invention according to claim 3, beforehand, setting out of the size of the image data of one page unit transmitted is unnecessary, the preset value concerned becomes settled automatically, and equalization of the size of the image data of one page unit transmitted can be attained.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the filling system which connected the type scanner device corresponding to a network to the network.

[Drawing 2]It is a block diagram showing the basic constitution of the scanner device of type corresponding to a network.

[Drawing 3]It is a flow chart which shows the basic motion of the scanner device of type corresponding to a network.

[Drawing 4]It is the figure which illustrated the destination information which should transmit a picture with the scanner device of type corresponding to a network, the address of an address, and the 1-page data size information set as the server system of an address.

[Description of Notations]

10 A type scanner device corresponding to a network

11 CPU

12 Final controlling element

13 Operation control part

14 Reading part

15 Reading control section

16 ROM

17 RAM(1)

18 RAM(2)

19 LAN controller

[Translation done.]

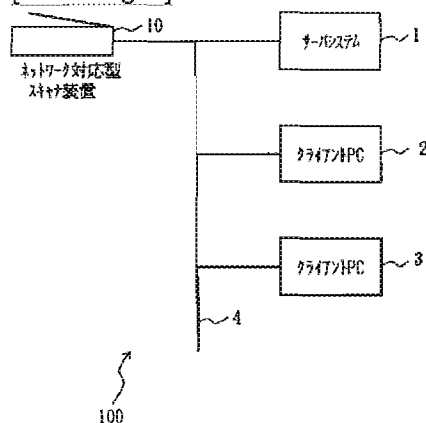
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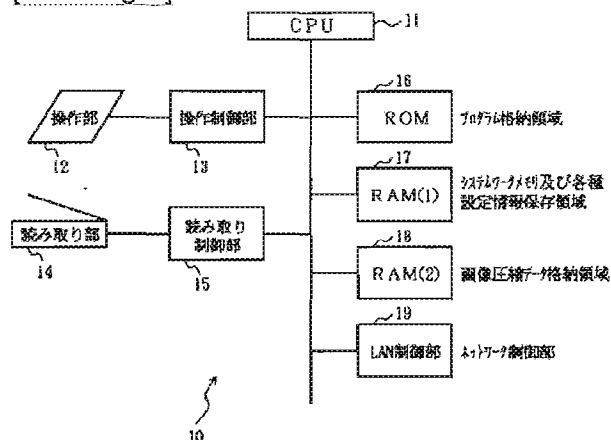
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DRAWINGS

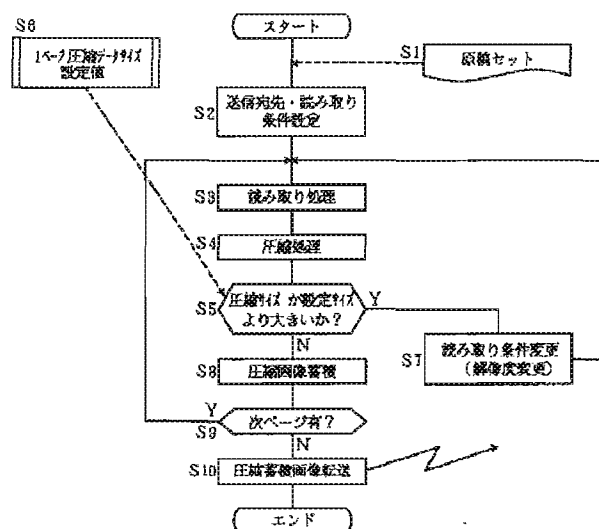
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Drawing 4]

送信宛先名称	送信アドレス	用紙サイズ
青山事業所	aooyama@ricoh.co.jp	50KB
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福岡事業所	fukuoka@ricoh.co.jp	70KB

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